

(19)日本国特許庁(J.P.)

(12) 公開特許公報(A)

(11)特許出願公開番号

特開平5-273881

(43)公開日 平成5年(1993)10月22日

(51)Int.Cl. ⁵	識別記号	庁内整理番号	F I	技術表示箇所
G 0 3 G 15/20	1 0 2			
15/01		K		
15/20	1 0 7			

審査請求 未請求 請求項の数7(全 4 頁)

(21)出願番号 特願平4-67336

(22)出願日 平成4年(1992)3月25日

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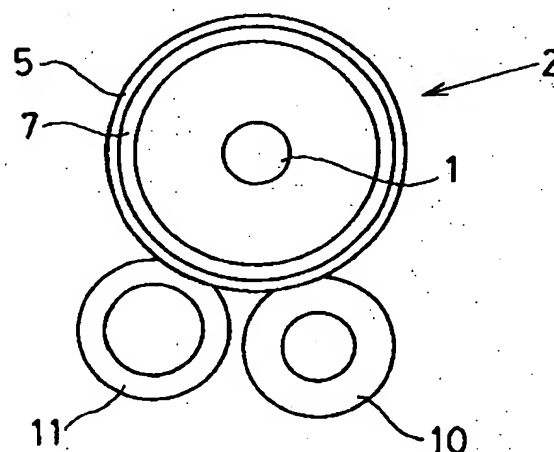
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(54)【発明の名称】 定着装置

(57)【要約】

【目的】 重ね合せ転写方式のフルカラー複写機で所要の定着熱量を転写紙とトナーに与えることができ、定着性、用紙の定着ローラからの分離性のよい熱ローラ定着装置を提供することを目的とする。

【構成】 ヒータ1を内蔵する1本の定着ローラ2に、その周動方向の順に2本の加圧ローラ10、11を順次圧接させ、これらのローラにより形成される第1、第2ニップ部の形状を異ならせる。



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【特許請求の範囲】

【請求項1】 熱源を内蔵し回転駆動される定着ローラと、該定着ローラに周動方向の順に順次圧接し従動回転する2本の加圧ローラとを有し、未定着トナー像を担持する転写紙をこれらのローラにより形成される2つのニップを順次通紙させて定着を行なう熱ローラ定着装置において、上記2つのニップの形状を異ならせたことを特徴とする定着装置。

【請求項2】 熱源を内蔵し回転駆動される定着ローラと、該定着ローラに周動方向の順に順次圧接し従動回転する2本の加圧ローラとを有し、未定着トナー像を担持する転写紙をこれらのローラにより形成される2つのニップを順次通紙させて定着を行なう熱ローラ定着装置において、上記2つのニップによる夫々の定着力を異ならせたことを特徴とする定着装置。

【請求項3】 上記の第1の加圧ローラの径が第2の加圧ローラの径より大きいことを特徴とする請求項1又は2に記載の定着装置。

【請求項4】 上記の第1のニップの形状が第2のニップの形状よりも転写紙が定着ローラに巻き付き易い形状であることを特徴とする請求項1又は2に記載の定着装置。

【請求項5】 熱源を内蔵し回転駆動される定着ローラと、該定着ローラに周動方向の順に順次圧接し従動回転する2本の加圧ローラとを有し、未定着トナー像を担持する転写紙をこれらのローラにより形成される2つのニップを順次通紙させて定着を行なう熱ローラ定着装置において、上記の第1の加圧ローラの加圧力の方が第2の加圧ローラの加圧力より大きいことを特徴とする定着装置。

【請求項6】 熱源を内蔵し回転駆動される定着ローラと、該定着ローラに周動方向の順に順次圧接し従動回転する2本の加圧ローラとを有し、未定着トナー像を担持する転写紙をこれらのローラにより形成される2つのニップを順次通紙させて定着を行なう熱ローラ定着装置において、上記2つの加圧ローラの間に転写紙を第1のニップから第2のニップへ導くガイド部材を設けたことを特徴とする定着装置。

【請求項7】 上記のガイド部材は一端のみが一方の側板に固定されていることを特徴とする請求項6に記載の定着装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は1本の定着ローラに2本の加圧ローラが圧接し、これらによって形成されるニップを転写紙を順次通して定着を行なう熱ローラ定着装置に関する。

【0002】

【従来の技術】 3色又は4色のトナー色を同一転写紙上に重ね合せて転写し定着してフルカラーコピーを形成す

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るカラー複写機の定着装置としては、図5に示す如く熱源1を内蔵する定着ローラ1とこれに圧接して従動回転する加圧ローラ3とより成り、未定着トナー像を担持する転写紙4をこれらのローラ間に形成されるニップ部に通してトナー像を転写紙に融着する熱ローラ定着装置が一般に用いられている。

【0003】フルカラーコピーは見た目の高級感が得られるように、定着ローラにシリコンゴムローラ5を用い、離型性の向上のためにシリコンオイルを塗布しているが、シリコンオイルはシリコンゴムの表面に塗った場合濡れが良いためオイル塗布量が多くなり、分離爪6の先端にたまり、コピー上にオイル跡が発生し易い。

【0004】フルカラーコピーは多層トナー定着のため熱エネルギーを多量に必要とする。定着熱量を多く転写紙とトナーに伝達し定着性を向上させる方法としては、定着温度を高くすることと、定着ローラと加圧ローラとのニップ幅を広くすることの2つがある。しかし、定着温度上昇はトナー像の表面が溶融しローラに付着するホットオフセットの発生やローラの寿命低下の問題がある。一方、ニップ幅の拡大方法としては、加圧ローラの加圧力を上げる方法、加圧ローラのゴム硬度を下げる、ゴム層の厚さを厚くする等の方法がある。しかし、ニップ幅を広くする方法では、転写紙は定着ローラの周面に沿う円周方向の長さが長くなり転写紙が定着ローラに巻きつく方向に変形されて定着される。従って定着された転写紙は分離爪で分離しなければならない。トナーの少い白紙部は分離性が良いが、ベタ部は分離性が悪く定着ローラに巻き付き、分離爪で分離される位置迄定着ローラに密着していると、定着過剰になり、光沢が増え逆にオフセット迄発生することがある。フルカラーコピーで先端が白色で途中からベタ部がある場合は先端の分離がよく、途中のベタ部からローラに巻き付き、その結果ベタの先端と後端とで光沢が異なるベタ部光沢ムラが発生する。そこで、逆に定着ローラのゴム層の厚さを厚くすると紙は定着ローラから分離する方向に湾曲する。しかし、ゴム層を厚くするとゴムは熱伝導率が悪いので、連続コピーを行なうと芯金と定着ローラ表面で温度差が大きくなり、芯金とゴムとの間で剥離が生じ寿命が短くなる。その対策として加圧ローラにヒータを入れる方法があるが、連続コピー中に上下ヒータを入れることは所要電力の点から1つのコンセントの許容電流量から大きな制約を受ける。

【0005】そこで、低い電力で定着性を向上させるためのニップ拡大方法として、例えば実開平3-80461号公報等に開示されているように加圧ローラの代りに無端ベルトを用いる方法がある。ベルトとしてはポリイミド等の耐熱性のすぐれた材料を用いているが、150℃～200℃の高温状態で片寄りを防止しながら長期間使用することはむづかしく、ベルトにしわが発生し、定着ムラ等寿命が問題となっている。

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【0006】又、加圧ローラの加圧力を上げることなく、ニップ幅を増す手段として、一つの定着ローラに周動方向の順に2本の加圧ローラを順次圧接させ、これらのローラにより形成される2つのニップを順次転写紙を通して定着させる方法が知られている。この方法によれば加圧力をそのままにしてニップ幅を2倍にすることができるが、上述の諸問題を解決することは特に考慮されていない。

【0007】

【発明が解決しようとする課題】本発明は、特に重ね合10
せ転写方式のフルカラー複写機に使用される熱ローラ定着装置の上述の実情にかんがみ、加圧ローラの加圧力を上げることなくニップ幅を増すことが可能な、1本の定着ローラに2本の加圧ローラを順次圧接させる構成の熱ローラ定着装置を用いて、定着性が高く、かつ定着ローラからの用紙の分離性の向上、低電力での定着性の向上、第1ニップ部から第2ニップ部への用紙の案内性を向上させることのできる定着装置を提供することを課題とする。

【0008】

【課題を解決するための手段】上記形式の熱ローラ定着装置において、定着性が高くかつ定着ローラからの用紙の分離性を向上させるための本発明の手段は、2つのニップ部の形状を異ならせたことを特徴とする。

【0009】又、低電力で定着性を向上させる手段は2つのニップによる夫々の定着力を異ならせたことを特徴とする。

【0010】又、第1ニップ部から第2ニップ部への用紙の案内性を向上させる手段は両ニップ部間にガイド部材を設けたことを特徴とする。

【0011】

【作用】第1の構成によれば2つのニップの各々の形状を夫々定着に好ましい形状及び用紙分離に適した形状に設計することが容易であるから、定着性、分離性の優れた定着装置を得ることができる。

【0012】第2の構成によれば、一対のローラ対で定着性、分離性とも満足させるバランス設計を行なう必要がなく、2つの加圧ローラで定着が行なわれれば良いので設計の余裕が増し、定着性を向上させることができる。

【0013】第3の構成によれば、第1ニップ部から出た用紙はガイド部材により第2ニップ部に確実に案内されるので、ローラ間で紙詰りが発生するおそれがなく、定着部で紙詰りが発生することによる用紙の焼損等の事故を防止することができる。

【0014】本発明の上記以外の課題及びこれを解決するための手段は以下に図面を参照して詳細に述べる実施例の説明により明らかにされるであろう。

【0015】

【実施例】以下、本発明の実施例を、図面に基づいて詳50

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細に説明する。

【0016】図1は、本発明の第1実施例を示す図である。ヒータ1を内蔵し表層としてシリコンゴム層5を芯金7の上に有する定着ローラ2には、矢印で示すその回転方向の順に第1加圧ローラ10及び第2加圧ローラ11が圧接し、定着ローラ2の回転に従動回転する。

【0017】定着ローラ2の直径は60mmでシリコンゴム層5の厚さは1.5mm、硬度は45°である。ヒータ1は600Wのハロゲンランプヒータである。加圧ローラ10、11はいずれも外径が30mmのシリコンゴムローラで第1加圧ローラ10のゴム層の厚さは6.5mm、第2加圧ローラ11のゴム層の厚さは3mmとなっている。ゴム硬度はいずれも45°であるが厚さによりゴムのたわみは異なる。第1加圧ローラ10はたわみが大きくフェースカール状（紙が下に凸、定着ローラに巻き付くように湾曲する）にニップ形状が形成される。第2加圧ローラ11のゴム層は薄いので変形量が少く、第1加圧ローラ10に比してニップ形状は平面に近くなる。しかし、変形量が少くなるとニップ量が少くなり、定着性は第1加圧ローラ10より低下する。

【0018】一方、第1加圧ローラ10はフェースカール状のニップ形状でかつニップ量が大いため第2加圧ローラより定着性がすぐれている。更に用紙は定着ローラ2に巻付き、定着ローラ2に密接したまま第2加圧ローラ11迄移動し、その結果、十分な定着熱エネルギーが用紙に与えられ、良好に定着され、光沢のあるカラーコピーが得られる。又、第2加圧ローラ11によるニップは平坦に近いので用紙を定着ローラ2より離す方向の作用を生じ、良好な分離性が得られ、分離爪によるオイル跡、光沢ムラのない良好なコピーが得られた。

【0019】次に、図2により、第2実施例を説明する。この実施例では、定着ローラ2の構成、寸法は第1実施例と同じである。第1加圧ローラ10は外径45mm、厚さ8.5mm、硬度45°のシリコンゴムから成っている。第2加圧ローラ11は第1実施例と同様外径30mm厚さ3mm硬度45°のシリコンゴムである。第1加圧ローラ10は径が大きく、肉厚も厚くなったため、ニップが大きく定着性が優れている。又、用紙が調湿し波打ちを生じても加圧ローラが大きくなることで第1ニップに進入し易くなり、用紙がストップしてジャムするおそれもない。

【0020】又、加圧ローラを2つとも外径45mmにすると用紙の排出方向はかなり上方を向き搬送設計上制約となるが外径30mmと、第1加圧ローラ10より小さくなっているため排出位置は下り、設計上余裕が増し、定着ユニットも小さくすることができる。

【0021】次に、図3、図4により第3実施例を説明する。この実施例では、定着ローラ2は第1実施例と同一の構成、寸法である。加圧ローラ10、11はいずれも外径30mm厚さ6mmのシリコンゴムから成っている

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が、そのゴム硬度は第1加圧ローラ10では35°、第2加圧ローラ11では45°となっており、又、定着ローラ2との間に印加される加圧力は、第1加圧ローラの方は40kg、第2加圧ローラの方は30kgとなっている。定着性の効果は第1実施例と同じである。しかし、本実施例では第1、第2加圧ローラ10、11の間に、転写紙を第1ニップから第2ニップに案内するガイド部材13が設けられている。ガイド部材13は、図4に示す如く一端を後側板14にねじ16で固定され、他端に前側板15に設けた穴を摺動自在に通して螺着されたねじ17の頭の下面と前側板15の外面との間に圧縮バネ18を挿入して弾発的に保持されている。

【0022】したがって、定着ガイド部材が加熱されて伸びてもガイド部材は前側板に拘束されず熱応力を逃すことができる。なお、ねじ17と前側板15の穴とのガタを少なく摺動自在に貫通させておけばね18は必ずしも必要ではない。

【0023】上記のガイド部材13を設けたことにより、用紙の前端部分が白紙で第1ニップから出た用紙が定着ローラ2に巻付かずニップ出口における接線方向に出てきても、ガイド部材13のガイド面に案内され、先端が第2加圧ローラ11の周面に衝接することなく、第2ニップに円滑に挿入され、紙詰りの発生を防止することができる。

【0024】

【発明の効果】以上の如く、本発明によれば、1本の定

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着ローラに順次2本の加圧ローラを圧接させることによって、加圧力を高くすることなく大きなニップ幅を得ることができ、重ね合せ転写方式のフルカラー複写において充分な熱量を転写紙及びトナーに与えることができるとともに、定着性が高く、用紙の分離性がよく、第1ニップから第2ニップへの用紙の案内性がよく、紙詰りのおそれの少ない熱ローラ定着装置を得ることができる。

【図面の簡単な説明】

【図1】本発明の第1実施例を示す断面図である。

【図2】本発明の第2実施例を示す断面図である。

【図3】本発明の第3実施例を示す断面図である。

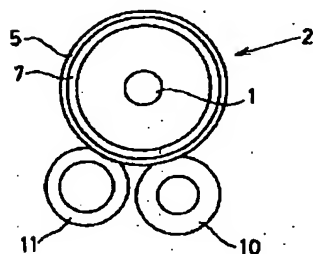
【図4】そのガイド部材の両端の取付部を示す側面図である。

【図5】従来のカラー複写機の一般的な熱ローラ定着装置の構成を示す断面図である。

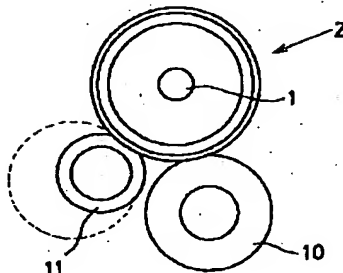
【符号の説明】

- | | |
|--------|---------|
| 1 | ヒータ（熱源） |
| 2 | 定着ローラ |
| 5 | シリコンゴム層 |
| 10 | 第1加圧ローラ |
| 11 | 第2加圧ローラ |
| 13 | ガイド部材 |
| 14, 15 | 側板 |
| 16, 17 | ねじ |
| 18 | ばね |

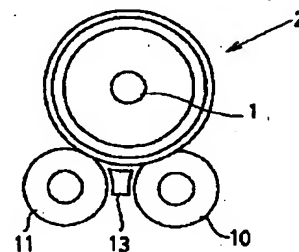
【図1】



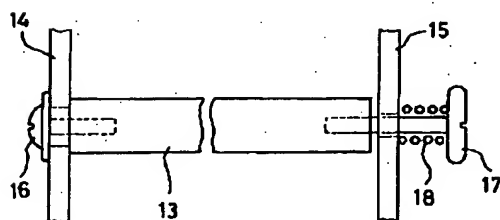
【図2】



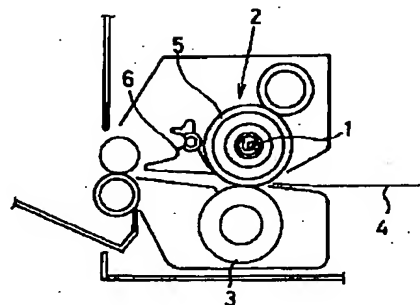
【図3】



【図4】



【図5】



FIXING DEVICE

Patent Number: JP5273881
Publication date: 1993-10-22
Inventor(s): SAWAI YUJI
Applicant(s): RICOH CO LTD
Requested Patent: ☐ JP5273881
Application Number: JP19920067336 19920325
Priority Number(s):
IPC Classification: G03G15/20; G03G15/01; G03G15/20
EC Classification:
Equivalents:

Abstract

PURPOSE: To obtain a thermal roller fixing device obtaining wide nipping width without making pressurizing force high, having the excellent separability and guiding properties of a form, and reducing paper jamming by pressing one fixing roller to successively contact with two pressure rollers.
CONSTITUTION: The first pressure roller 10 and the second pressure roller 11 are pressed to successively contact with the fixing roller 2, in its rotational direction, and rotated in accordance with the rotation of the fixing roller 2. The deflection of the first pressure roller 10 is large and a nipping shape is made into a face curl. The rubber layer of the second pressure roller 11 is thin, so that deformation is a little, and the nipping shape is nearly plane, compared with that of the first pressure roller 10. However, when the deformation becomes a little, the quantity of nipping is small, and fixation is lowered than that of the first pressure roller 10. Thus, the shapes of two nips are easily designed so as to be preferable to fixing and suitable for separating the form, respectively, so that a fixing device excellent in the fixation, separability, and guiding properties can be obtained.

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CLAIMS

[Claim(s)]

[Claim 1] An anchorage device which contains a heat source and is characterized by to change a configuration of the two above-mentioned nips in a heat roller anchorage device which has a fixing roller by which a rotation drive is carried out, and two pressurization rollers which carry out a pressure welding to this fixing roller one by one at order of the **** direction, and carry out follower rotation, and is established by making two nips formed with these rollers in a transfer paper which supports a non-established toner image **** one by one.

[Claim 2] The anchorage device which contains a heat source and is characterized by to change each fixing force by the two above-mentioned nips in a heat roller anchorage device which has a fixing roller by which a rotation drive is carried out, and two pressurization rollers which carry out a pressure welding to this fixing roller one by one at order of the **** direction, and carry out follower rotation, and is established by making two nips formed with these rollers in a transfer paper which supports a non-established toner image **** one by one.

[Claim 3] An anchorage device according to claim 1 or 2 with which a path of the 1st above-mentioned pressurization roller is characterized by being larger than a path of the 2nd pressurization roller.

[Claim 4] An anchorage device according to claim 1 or 2 with which a configuration of the 1st above-mentioned nip is characterized by being the configuration in which a transfer paper tends to coil around a fixing roller rather than a configuration of the 2nd nip.

[Claim 5] An anchorage device characterized by the welding pressure of the 1st above-mentioned pressurization roller being larger than welding pressure of the 2nd pressurization roller in a heat roller anchorage device which is equipped with the following and established by making two nips formed with these rollers in a transfer paper which supports a non-established toner image **** one by one: A fixing roller by which contains a heat source and a rotation drive is carried out Two pressurization rollers which carry out a pressure welding to this fixing roller one by one at order of the **** direction, and carry out follower rotation

[Claim 6] An anchorage device characterized by providing the following A fixing roller by which contains a heat source and a rotation drive is carried out A guide member which leads a transfer paper to the 2nd nip from the 1st nip between the two above-mentioned pressurization rollers in a heat roller anchorage device which carries out a pressure welding to this fixing roller one by one at order of the **** direction, has two pressurization rollers which carry out follower rotation, and is established by making two nips formed with these rollers in a transfer paper which supports a non-established toner image **** one by one

[Claim 7] The above-mentioned guide member is an anchorage device according to claim 6 characterized by fixing only an end to one side plate.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Two pressurization rollers carry out the pressure welding of this invention to one fixing roller, and it relates the nip formed of these in a transfer paper to the heat roller anchorage device established by acting as a connoisseur one by one.

[0002]

[Description of the Prior Art] As an anchorage device of the color copying machine which piles up the toner color of three colors or four colors on the same transfer paper, imprints it, is established, and forms a full color copy. As shown in drawing 5, a pressure welding is carried out and it changes from the pressurization roller 3 which carries out follower rotation to the fixing roller 1 and this which build in a heat source 1, and generally the heat roller anchorage device which lets the transfer paper 4 which supports a non-established toner image pass in the nip section formed among these rollers, and welds a toner image to a transfer paper is used.

[0003] Although the silicon rubber roller 5 was used for the fixing roller and silicone oil is applied for improvement in a mold-release characteristic, when it applies on the surface of silicone rubber, since **** is good, oil coverage of silicone oil increases, and the remains of oil tend to generate it on the bank and a copy at the tip of the separation pawl 6, so that, as for a full color copy, the high-class feeling of appearance may be obtained.

[0004] A full color copy needs heat energy for a large quantity for multilayer toner fixing. As a method of transmitting many fixing quantity of heat to a transfer paper and a toner, and raising fixable, there are two, make [making fixing temperature high and] large nip width of face of a fixing roller and a pressurization roller. However, a fixing temperature rise has generating of hot offset and the problem of a life fall of a roller of the surface of a toner image fusing and adhering to a roller. There are methods, such as thickening thickness of the rubber layer which, on the other hand, lowers the rubber degree of hardness of a method and a pressurization roller which raises the welding pressure of a pressurization roller as the expansion method of nip width of face. However, by the method of making nip width of face large, the length of the circumferencial direction in alignment with the peripheral surface of a fixing roller becomes long, and a transfer paper is transformed in the direction which coils around a fixing roller by the transfer paper, and it is fixed to it. Therefore, a separation pawl must separate the transfer paper to which it was fixed. Although little blank paper section of a toner has good separability, separability coils around a fixing roller bad, when the solid section is stuck to the fixing roller to the location separated by the separation pawl, it may become overfixing, and its gloss may increase, and it may be conversely generated to offset. A tip is white by the full color copy, when there is the solid section from the middle, separation at a tip is good and coils around a roller from the intermediate solid section, and the solid section gloss nonuniformity from which gloss differs by result solid a tip and the back end occurs. Then, if thickness of the rubber layer of a fixing roller is thickened at reverse, paper will curve in the direction separated from a fixing roller. however -- since thermal conductivity of rubber is bad when a rubber layer is thickened, if a continuation copy is performed -- rodding and the fixing

roller surface -- a temperature gradient -- large -- becoming -- between rodding and rubber -- exfoliation -- being generated -- a life -- short -- **** -- ** Although there is a method of putting a heater into a pressurization roller as the cure, putting in a vertical heater during a continuation copy receives big constraint from the amount of allowable currents of the point of the required power to one plug socket.

[0005] Then, there is a method of using an endless belt instead of a pressurization roller as the nip expansion method for raising fixable with low power, as indicated by JP,3-80461,U etc. Although the outstanding material of the thermal resistance of polyimide etc. is used as a belt, preventing deviation in the state of a 150 degrees - 200 degrees C elevated temperature, it is difficult to use it for a long period of time, a wrinkling occurs to a belt, and lives, such as fixing nonuniformity, pose a problem.

[0006] Moreover, without raising the welding pressure of a pressurization roller, as a means which increases nip width of face, the order of the **** direction is made to carry out the pressure welding of the two pressurization rollers to one fixing roller one by one, and the method to which two nips formed with these rollers are fixed through a transfer paper one by one is learned. According to this method, welding pressure can be left as it is, nip width of face can be doubled, but especially the thing for which many above-mentioned problems are solved is not taken into consideration.

[0007]

[Problem(s) to be Solved by the Invention] Especially this invention takes an example by the above-mentioned actual condition of the heat roller anchorage device used for the full colour copying machine of a superposition imprint method. [which can increase nip width of face, without raising the welding pressure of a pressurization roller] The heat roller anchorage device of a configuration of carrying out the pressure welding of the two pressurization rollers to one fixing roller one by one is used. Fixable is high and makes it a technical problem to offer the anchorage device which can raise improvement in the separability of the form from a fixing roller, fixable improvement with low power, and the guidance nature of the form from the 1st nip section to the 2nd nip section.

[0008]

[Means for Solving the Problem] In a heat roller anchorage device of the above-mentioned format, a means of this invention for fixable to raise the separability of a form from a fixing roller highly is characterized by changing a configuration of the two nip sections.

[0009] Moreover, a means which raises fixable with low power is characterized by changing each fixing force by two nips.

[0010] Moreover, a means which raises the guidance nature of a form from the 1st nip section to the 2nd nip section is characterized by preparing a guide member between both the nip sections.

[0011]

[Function] Since it is easy to design each configuration of two nips in the configuration of having been suitable for a configuration and deleving respectively desirable to fixing according to the 1st configuration, the anchorage device which was excellent in fixable and separability can be obtained.

[0012] It is not necessary to perform balance layout for which fixable and separability are satisfied to the roller pair of a pair, and according to the 2nd configuration, since fixing should just be performed by two pressurization rollers, the additional coverage of layout can raise increase and fixable.

[0013] Since the form which came out of the 1st nip section is certainly guided by the guide member at the 2nd nip section according to the 3rd configuration, there is no possibility that a paper jam may occur between rollers, and accident, such as burning of the form by a paper jam occurring in the fixing section, can be prevented.

[0014] The means for solving technical problems other than the above of this invention and this will be clarified by explanation of the example stated to details with reference to a drawing below.

[0015]

[Example] Hereafter, the example of this invention is explained to details based on a drawing.

[0016] Drawing 1 is drawing showing the 1st example of this invention. The 1st pressurization roller 10 and the 2nd pressurization roller 11 carry out a pressure welding to the order of the hand of cut shown in the fixing roller 2 which contains a heater 1 and has the silicone rubber layer 5 on rodding 7 as a surface by the arrow head, and follower rotation is carried out at rotation of a fixing roller 2.

[0017] The diameter of a fixing roller 2 is [1.5mm and the degree of hardness of the thickness of the silicone rubber layer 5] 45 degrees in 60mm. A heater 1 is a halogen lamp heater of 600W. In the thickness of the rubber layer of the 1st pressurization roller 10, the thickness of the rubber layer of 6.5mm and the 2nd pressurization roller 11 is [the pressurization rollers 10 and 11] 3mm by the silicon rubber roller whose outer diameter is all 30mm. Although each rubber degree of hardness is 45 degrees, the deflection of rubber changes with thickness. A deflection is large and, as for the 1st pressurization roller 10, a nip configuration is formed in the shape of face curl (it curves so that paper may coil around convex and a fixing roller). Since the rubber layer of the 2nd pressurization roller 11 is thin, there is little deformation and a nip configuration becomes close to a plane as compared with the 1st pressurization roller 10. However, if deformation decreases, the amount of nips will decrease and fixable will fall from the 1st pressurization roller 10.

[0018] On the other hand, since the 1st pressurization roller 10 is the nip configuration of the letter of face curl and its amount of nips is large, fixable is superior to the 2nd pressurization roller. Furthermore, even the 2nd pressurization roller 11 moves a form to a fixing roller 2, been close to a volume and a fixing roller 2, consequently sufficient fixing heat energy is given to a form, it is established good, and a glossy color copy is obtained. Moreover, since the nip with the 2nd pressurization roller 11 was evenly near, the operation of the direction which detaches a form from a fixing roller 2 was produced, good separability was acquired, and the good copy without the remains of oil by the separation pawl and gloss nonuniformity was obtained.

[0019] Next, drawing 2 explains the 2nd example. In this example, the configuration of a fixing roller 2 and the size are the same as the 1st example. The 1st pressurization roller 10 consists of SHIRISONGOMU with 8.5mm [in the outer diameter of 45mm, and thickness], and a degree of hardness of 45 degrees. The 2nd pressurization roller 11 is silicone rubber with a 3mm degree of hardness [in outer-diameter thickness of 30mm] of 45 degrees like the 1st example. The 1st pressurization roller 10 has a large path, since it became thick [thickness], nip is large and fixable is excellent. Moreover, even if a form carries out gas conditioning and produces flapping, it becomes easy to advance into the 1st nip because a pressurization roller becomes large, and a form stops and a possibility of carrying out a jam does not have it, either.

[0020] Moreover, if both of pressurization rollers are made into the outer diameter of 45mm, although the eject direction of a form becomes constraint on sense conveyance layout about the upper part, since it is smaller than the outer diameter of 30mm, and the 1st pressurization roller 10 considerably, it can get down from a discharge location and layout top additional coverage can also make increase and a fixing unit small.

[0021] Next, drawing 3 and drawing 4 explain the 3rd example. In this example, fixing rollers 2 are the same configuration as the 1st example, and a size. Although the pressurization rollers 10 and 11 all consist of with an outer-diameter thickness [6mm thickness of 30mm] silicone rubber, in the direction of 40kg and the 2nd pressurization roller, the direction of the 1st pressurization roller is [the welding pressure which the rubber degree of hardness is 45 degrees with 35 degrees and the 2nd pressurization roller 11 with the 1st pressurization roller 10 and is impressed between fixing rollers 2] 30kg. The fixable effect is the same as the 1st example. However, in this example, the guide member 13 which shows a transfer paper to the 2nd nip from the 1st nip is formed among the 1st and 2nd pressurization rollers 10 and 11. As shown in drawing 4, an end is ****ed to an epimeral plate 14 and it is fixed by 16, and the guide member 13 inserts a compression spring 18 between the inferior surfaces of tongue of the head of a screw thread 17 and the external surface of a propleuron 15 which let the hole established in the propleuron 15 pass to the other end, enabling free sliding, and were screwed on it, and is held in the from cartridge.

[0022] Therefore, even if a fixing guide member is heated and it is extended, a guide member is not restrained by the propleuron but can miss thermal stress. in addition -- if the backlash of a screw thread 17 and the hole of a propleuron 15 is made to penetrate for it to be few and free [sliding] -- a spring 18 -- also ***** (ing) -- it is not required.

[0023] Without showing around in the guide side of the guide member 13, and a tip **** (ing) to the

peripheral surface of the 2nd pressurization roller 11, even if the form to which the front end portion of a form came out of the 1st nip in the blank paper appears in a fixing roller 2 by having formed the above-mentioned guide member 13 in the tangential direction in a volume and a ** nip outlet, it is smoothly inserted in the 2nd nip and generating of a paper jam can be prevented.

[0024]

[Effect of the Invention] According to this invention, like the above, by carrying out the pressure welding of the two pressurization rollers to one fixing roller one by one While being able to obtain big nip width of face and being able to give sufficient quantity of heat to a transfer paper and a toner in the full color copy of a superposition imprint method, without making welding pressure high Fixable is high, the separability of a form is good, and the guidance nature of the form from the 1st nip to the 2nd nip can be good, and can obtain a heat roller anchorage device with little fear of a paper jam.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the cross section showing the 1st example of this invention.

[Drawing 2] It is the cross section showing the 2nd example of this invention.

[Drawing 3] It is the cross section showing the 3rd example of this invention.

[Drawing 4] It is the side elevation showing the attachment section of the both ends of the guide member.

[Drawing 5] It is the cross section showing the configuration of the common heat roller anchorage device of the conventional color copying machine.

[Description of Notations]

1 Heater (Heat Source)

2 Fixing Roller

5 Silicone Rubber Layer

10 1st Pressurization Roller

11 2nd Pressurization Roller

13 Guide Member

14 15 Side plate

16 17 Screw thread

18 Spring

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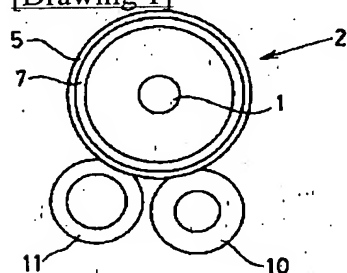
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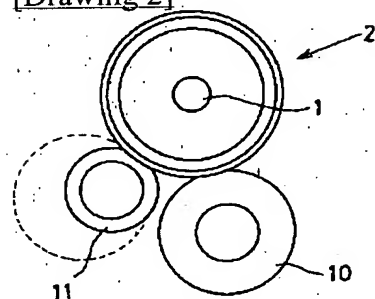
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DRAWINGS

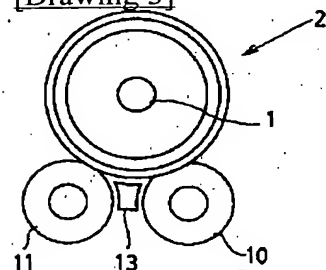
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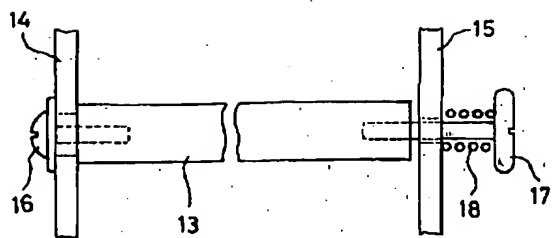
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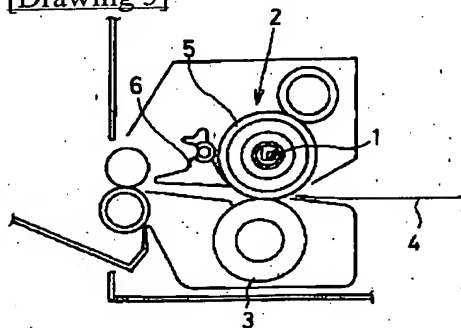
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]